

Supplementary materials for ‘Non-scientific mindsets predict a gap between past vaccine behaviors and future intentions’

Survey materials

The following provides further details on the brief summary in the Methods. Unlike that earlier summary, the following reflects the order in which items were presented, also indicating the recruitment stage each block appeared in.

Asterisks (*) mark blocks or items not analyzed in addressing the three research questions (but still included in the open data). These are briefly mentioned for the sake of transparency—see additional online material at <https://osf.io/xf8zv/> for the full survey script, including individual items, instructions and response options.

Except where otherwise indicated, ratings were on 5-point Likert scales ranging from ‘Strongly disagree’ to ‘Strongly agree’.

Stage 1 recruitment: Health, CAM and vaccines

Stage 1 recruitment focused on our core topics: CAM and vaccines. After informed consent, participants provided basic demographics and completed a survey that addressed topics related to health behavior, attitudes and beliefs.

Demographics. Participants provided their ages, gender and highest completed education level. They rated their political ideologies, separately for social and economic issues (5-point Likert scales ranging from ‘Strongly liberal’ to ‘Strongly conservative’, with two explicit opt-out options: ‘Prefer not to answer’ and ‘These options don’t describe my beliefs’). *They were also asked how many children they had.

***Health status.** Participants self-reported their general physical and mental health, as well as disability status and chronic conditions.

Health Locus of Control. The Multidimensional Health Locus of Control scale (MHLC, Wallston et al., 1978) assesses beliefs about the degree to which one’s health is controlled by internal factors (e.g., ‘If I get sick, it is my own behavior which determines how soon I get well again’), powerful others (e.g., ‘Having regular contact with my physician is the best way for me to avoid illness’), or chance (e.g., ‘No matter what I do, if I am going to get sick, I will get sick’).

CAM use. Participants reported their levels of CAM use with an adapted form of the Revised International Questionnaire to Measure Use of Complementary and Alternative Medicines (R-I-CAM-Q, Bryden and Browne, 2016). This asks whether one has used a range of CAM providers, products or self-help practices. *Next, participants were shown a longer list of CAM modalities and selected as many as they had used.

CAM reliance. If participants indicated non-zero CAM use above, a follow-up question asked how much they relied on CAM as a proportion of overall healthcare (5-point Likert scale ranging from ‘Not a source of my healthcare’ to ‘The only source of my healthcare’). Participants who indicated zero CAM use were assigned the first of these options.

CAM beliefs. The Complementary and Alternative Medicine Beliefs Inventory (CAMBI, Bishop et al., 2005) consists of 20 statements about natural treatments (e.g., ‘Treatments should only use natural ingredients’), holistic health (e.g., ‘Health is about harmonizing your body, mind and spirit’) and the relationship between patient and healthcare provider (e.g., ‘Treatment providers should treat patients as equal partners’).

Vaccine hesitancy. Regarding past behavior for COVID-19 vaccines, participants rated whether they had received a vaccine in the previous two years using a 5-point Likert scale with response options ‘No, and I refuse’, ‘No, but my doubts might be overcome in the future’, ‘Not yet, but I plan to’, ‘Yes, but I was initially hesitant’ and ‘Yes, without hesitance’. There were two opt-outs: ‘I can’t take this vaccine (but would if I could)’ and ‘Prefer not to answer’. Next they answered an equivalent question about their child. They were instructed that if they did not have children, they should imagine what they would say if they did (and if they had more than one child, to consider whichever child they had most recently made a vaccination decision for).

Participants then rated statements about COVID-19 vaccines along five dimensions of hesitancy (5C framework, Betsch et al., 2018). These include Confidence ('I am completely confident that COVID vaccines are safe') and Complacency ('My immune system is so strong, it also protects me against COVID'). *Next, participants selected from a list of provided options whichever behaviors they thought helped prevent COVID at the height of the pandemic (e.g., vaccines, garlic, Ivermectin, masks).

The vaccine behavior and 5C questions were then repeated for flu vaccines. Finally, participants were asked about future behavioral intentions, referring explicitly to the following couple of years and emphasizing this is not about practical constraints: 'If there is a strong consensus among health organizations that you (i.e., your demographic group) should get a COVID shot later this year (and if it is free and easily available in your neighborhood), would you?'. Response options were 'Definitely not', 'Probably not', 'I'm undecided', 'Probably', 'Definitely'. Equivalent items probed future behavioral intentions regarding flu and children.

Subsequent reference to "vaccine acceptance items" picks out the aforementioned eight items probing acceptance across all combinations of person (self/child), disease (COVID/flu), and type (past behavior/future behavioral intentions), thus excluding the 5C items.

***Self-explanations for hesitancy.** If previous responses reflected a degree of hesitance, participants explained why they were hesitant in their own words.

Vaccine attitudes. In order to probe negative attitudes to vaccines (with instructions to think of vaccines in general, not just the COVID and flu vaccines asked about previously), participants rated their agreement with statements from the Vaccine Attitudes Examination scale (VAX, Martin and Petrie, 2017), including mistrust of vaccines' benefits, potential risks, concerns about commercial motives, and preferences for natural immunity. Given concerns about mandates during the pandemic, we also included four items about government authority and legitimacy (Sarathchandra et al., 2018, items in additional online material at <https://osf.io/xf8zv/>).

***Vaccines and emotions.** Participants rated the extent to which they felt fear, disgust, calmness, and hope when considering vaccines in general.

***Media.** In the final block, participants reported how often they get information from various media sources about current events, health and well-being.

***Feedback.** Participants were invited to leave any feedback they had about their experience in the study or thoughts regarding these topics.

Stage 2 recruitment: Science, expertise and cognitive styles

Stage 2 explored participants' cognitive and informational frameworks. Specifically, this stage assessed participants' anomalous beliefs (those not consistent with the best available evidence), attitudes towards science and expertise (e.g., trust in science or preference for doing their own research), and cognitive styles (preferences for information processing, such as flexibility in changing beliefs).

Anomalous beliefs. Participants answered the General Magical Beliefs subscale from the Magical Beliefs About Food and Health scale (Lindeman et al., 2000), rating items such as 'Colors change the organism's energy vibration in a direction that is beneficial to health'. Next, the Pseudoscience Endorsement Scale (PES, Torres et al., 2023) evaluated beliefs in scientifically unproven or debunked concepts (e.g., 'Radiation derived from the use of a mobile phone increases the risk of a brain tumor'). Finally, the Paranormal and Supernatural Beliefs scale (Dean et al., 2021) included items such as 'Buildings can be haunted by spirits or other supernatural entities'.

Attitudes to science, expertise, authority or control. The Credibility of Science Scale (CoSS, Hartman et al., 2017) measured distrust in scientific information (e.g., 'Sometimes I think we put too much faith in science'). Additionally, deference to scientific authority was measured with items such as 'Scientists know best what is good for the public' from Brossard and Nisbet (2006). To align with other negatively-oriented scales in this block, we reverse-scored these, labelling them as 'Defiance' in Results below. The Negative Perceptions of Science Scale (NPSS, Morgan et al., 2018) assesses perceptions of science as corrupt, onerous, heretical, and limited.

Given the role of misinformation in this context, we included the Doing Your Own Research scale (DYOR, Chinn and Hasell, 2023) to examine how individuals prioritize gathering their own information over scientific consensus (e.g., ‘I prefer to do my own research rather than rely on experts and intellectuals’). Finally, to assess perceived infringements on one’s freedom to act, the Hong Psychological Reactance Scale was administered, with items such as: ‘When someone forces me to do something, I feel like doing the opposite’ (Hong and Faedda, 1996).

Cognitive styles and biases. Participants completed two scales from the Comprehensive Thinking Styles Questionnaire (CTSQ, Newton et al., 2024): Preference for Intuitive Thinking (e.g., ‘When I make decisions, I tend to rely on my intuition’) and Actively Open-minded Thinking (e.g., ‘Even if there is concrete evidence against what you believe to be true, it is OK to maintain cherished beliefs’). As a higher score indicates *less* open-minded thinking, we relabel this ‘Evidence conflict’ in analyses. The Indecisiveness Scale (Rassin et al., 2007) was included to measure participants’ general hesitance when making decisions (e.g., ‘It seems that deciding on the most trivial thing takes me a long time’).

Further cognitive biases assessed include Bullshit Receptivity (Pennycook et al., 2015) and Causal Illusions (Van der Wal et al., 2018). Bullshit Receptivity is when one accepts meaningless, superficially profound statements as true. Participants rated statements such as ‘Imagination is inside exponential space time events,’ along a 5-point scale (‘Not at all profound’ to ‘Very profound’). Causal illusions are when—given random, coincidental, confounded or spurious associations (e.g., ‘chocolate consumption is associated with an increase in Nobel prize winners in a country’)—people interpret these claims as expressing a *direct* causal connection (5-point rating from ‘Definitely not causal’ to ‘Definitely causal’).

Data quality checks

Each stage of recruitment had three main data quality checks. These items had similar content to above scales but had objectively true answers. For instance, ‘No one has ever received a vaccine into their arm’ was embedded in a random order in the Vaccine Attitudes block; participants had to disagree in order to pass. Quality checks are highlighted in red in the materials at <https://osf.io/xf8zv/>. We analyzed data from participants who failed *at most one* check per stage.

Analytic approach

The following provides further details on the analyses summarized in the Methods. The full analysis scripts are available at <https://osf.io/xf8zv/>.

1) Using the aforementioned vaccine acceptance items, we derived a vaccine acceptance score using a Bayesian ordinal regression with by-item and by-participant random intercepts on the location/response parameter—both with wider $\text{sd} \sim \mathcal{N}(0, 2)$ priors—and by-item random intercepts on the discrimination parameter. This, in effect, yields a 2-parameter graded-response Item Response Theory (IRT) model (?). The by-item random intercept for the location parameter represents easiness, while the by-item random intercept for discrimination represents the inverse of item variance. The by-participant random intercept represents the latent vaccine acceptance score for each individual.

(2) As the aforementioned latent vaccine acceptance score has upper and lower bounds and as many participants were on those extremes, whenever this score is the outcome variable, we modeled it using ordered Beta regressions (R package `ordbetareg`, ?). This approach scales the outcome to the range [0, 1] and expands on a plain Beta regression—which assumes range (0, 1)—by adding an ordered logistic component to the Beta model. All such models include socio-demographic covariates (gender, education level, age, and political ideology) as well as by-country interactions.

(3) Apart from these Bayesian regressions, we examined the structure of CAM beliefs in two main ways: with Exploratory Factor Analysis (EFA) and a Gaussian Graphical Model (GGM). The latter takes a network approach to associations between indicator variables using R package `bootnet` (?). For all pairs of indicator variables—

individual items in the CAM Beliefs Inventory—the GGM estimates the conditional dependence between their polychoric covariances (conditioned on all other variables in the input, with Lasso regularization).

Supplementary Tables and Figures

Table S1

Participant demographics, split by recruitment stage, for those who passed data quality checks. For a by-country breakdown of these, see Table S2.

	Recruitment stage	
	Stage 1	Stage 2
	(N=1905)	(N=1443)
Age		
Mean (SD)	39.1 (12.7)	39.3 (12.5)
Median [Min, Max]	37 [18, 84]	37 [18, 84]
Gender		
Woman	806 (42.3%)	599 (41.5%)
Man	1084 (56.9%)	833 (57.7%)
Nonbinary/optout	15 (0.8%)	11 (0.8%)
Education		
Primary sch.	10 (0.5%)	6 (0.4%)
Secondary sch.	570 (29.9%)	407 (28.2%)
Undergrad degr.	960 (50.4%)	753 (52.2%)
Postgrad degr.	314 (16.5%)	244 (16.9%)
Optout	51 (2.7%)	33 (2.3%)

Note. Optout = chose not to answer this question; sch. = school; degr. = degree.

Table S2

Participant demographics for Phase 1 recruitment, split by country, for those who passed data quality checks.

	Total	Country		
		Argentina	Germany	USA
	(N=1905)	(N=639)	(N=611)	(N=655)
Age				
Mean (SD)	39.1 (12.7)	44.4 (12.8)	30.9 (9.55)	41.6 (11.2)
Median [Min, Max]	37 [18, 84]	44 [18, 84]	29 [18, 73]	39 [20, 76]
Gender				
Woman	806 (42.3%)	334 (52.3%)	211 (34.5%)	261 (39.8%)
Man	1084 (56.9%)	304 (47.6%)	394 (64.5%)	386 (58.9%)
Nonbinary/optout	15 (0.8%)	1 (0.2%)	6 (1.0%)	8 (1.2%)
Education				
Primary sch.	10 (0.5%)	8 (1.3%)	0 (0%)	2 (0.3%)
Secondary sch.	570 (29.9%)	234 (36.6%)	127 (20.8%)	209 (31.9%)
Undergrad degr.	960 (50.4%)	343 (53.7%)	266 (43.5%)	351 (53.6%)
Postgrad degr.	314 (16.5%)	45 (7.0%)	183 (30.0%)	86 (13.1%)
Optout	51 (2.7%)	9 (1.4%)	35 (5.7%)	7 (1.1%)

Note. Optout = chose not to answer this question; sch. = school; degr. = degree.

Table S3

Overview of survey items analyzed in addressing Research Questions (RQs) 1-3, listing their broad categorization into domains and the labels we use to refer to each variable/subscale (including, where relevant, the term referring to its reverse), along with reliability metrics, scoring methods, and a summary of which RQs each appears in.

Domain	Label (reversed)	Subscale (reversed)	Source	# Items	Reliability		Scoring method	RQs
					α	ω_h		
Vaccines	Acceptance (resistance)	-	Custom	8	0.949 ^a	0.869 ^a	IRT model	1,2,3
	5C	Confidence	Betsch et al. (2018)	1	NA ^b	NA ^b	-	1
	"	Complacency	"	2	NA ^b	NA ^b	Average	1
	"	Constraints	"	1	NA ^b	NA ^b	-	1
	"	Calculation	"	1	NA ^b	NA ^b	-	1
	"	Collective	"	1	NA ^b	NA ^b	-	1
	Antivax attitudes	Benefits	Martin and Petrie (2017)	3	0.927	0.931	Sum score	3
	"	Side-effects	"	3	0.853	0.853	Sum score	3
	"	Commercial	"	3	0.908	0.908	Sum score	3
	"	Natural	"	3	0.882	0.883	Sum score	3
	"	Mandate	Sarathchandra et al. (2018)	4	0.871	0.843	Sum score	3
CAM	CAM use	- ^c	Bryden and Browne (2016)	9	0.877	0.697	Sum score	2,3
	CAM reliance	-	Custom	1			-	2,3
	CAM beliefs	Holistic ^d	Bishop et al. (2005)	5	0.764 ^a	0.659 ^a	Factor score	2,3
	"	Doctors/treatment ^d	"	4	0.612 ^a	0.607 ^a	Factor score	2,3
	"	Naturalness ^d	"	3	0.703 ^a	0.724 ^a	Factor score	2,3
	"	Self-healing ^d	"	3	0.708 ^a	0.718 ^a	Factor score	2,3
	"	Side-effects ^d	"	2	NA ^b	NA ^b	Factor score	2,3
	"	Peer-relationship ^d	"	3	0.705 ^a	0.708 ^a	Factor score	2,3
Experts & control	HLOC	Internal	Wallston et al. (1978)	6	0.802	0.718	Sum score	3
	"	Powerful others	"	6	0.786	0.762	Sum score	3
	"	Chance	"	6	0.715	0.500	Sum score	3
	Science attitudes	Limited	Morgan et al. (2018)	5	0.850	0.743	Sum score	3
	"	Corrupt	"	5	0.904	0.859	Sum score	3
	"	Heretical	"	5	0.972	0.950	Sum score	3
	"	Onerous	"	5	0.841	0.659	Sum score	3
	"	Credibility (distrust)	Hartman et al. (2017)	6	0.914	0.889	Sum score	3
	"	Deference (defiance)	Brossard and Nisbet (2006)	4	0.680	0.618	Sum score	3
	DYOR	-	Chinn and Hasell (2023)	3	0.725	0.734	Sum score	3
	Reactance	- ^c	Hong and Faedda (1996)	11	0.883	0.747	Sum score	3
Cognitive	Indecision	-	Rassin et al. (2007)	11	0.905	0.716	Sum score	3
	Actively open-minded thinking (Evidence conflict)	-	Newton et al. (2024)	6	0.935	0.884	Sum score	3
	Intuitive thinking	-	"	6	0.948	0.928	Sum score	3
	Paranormal	-	Dean et al. (2021)	14	0.958	0.941	Sum score	3
	Magical	-	Lindeman et al. (2000)	10	0.910	0.873	Sum score	3
	Pseudoscience	-	Torres et al. (2023)	20	0.926	0.863	Sum score	3
	Causal illusion	-	Van der Wal et al. (2018)	6	0.883	0.759	Sum score	3
	Bullshit receptivity	-	Pennycook et al. (2015)	10	0.921	0.803	Sum score	3

Note. Reliability metrics α and ω_h (hierarchical omega) are derived following Revelle and Condon (2019), with further details (including full calculations) in the data processing script at <https://osf.io/xf8zv/>. ^aThese reliability metrics are calculated *as though* we were just sum-scoring these items, for the sake of consistency with the rest of this table, even though the main analysis uses model-based scores. ^bThe ω_h is ill-defined for fewer than three items and, while α is in theory defined with just two items, it is not very meaningful. ^cThe published instrument lists potential subscales, but we only analyze the scale as a whole. ^dSubscales as per our own Exploratory Factor Analysis (EFA), rather than those in the published instrument.

Table S4

Item Response Theoretic (IRT) parameters for vaccine acceptance, representing the model in Figure 1b.

Parameter	Item	Estimate	95% CIs
Easiness	Behavior/Child/Covid	0.804	[0.058, 1.999]
Easiness	Behavior/Child/Flu	0.104	[-0.628, 1.077]
Easiness	Behavior/Self/Covid	1.909	[0.727, 3.717]
Easiness	Behavior/Self/Flu	-0.369	[-1.212, 0.509]
Easiness	Intentions/Child/Covid	-0.406	[-1.250, 0.452]
Easiness	Intentions/Child/Flu	-0.115	[-0.860, 0.804]
Easiness	Intentions/Self/Covid	-0.450	[-1.304, 0.378]
Easiness	Intentions/Self/Flu	-0.329	[-1.159, 0.531]
Discrimination	Behavior/Child/Covid	0.733	[0.449, 1.173]
Discrimination	Behavior/Child/Flu	0.505	[0.303, 0.817]
Discrimination	Behavior/Self/Covid	0.769	[0.467, 1.229]
Discrimination	Behavior/Self/Flu	0.465	[0.283, 0.739]
Discrimination	Intentions/Child/Covid	1.939	[1.179, 3.132]
Discrimination	Intentions/Child/Flu	1.471	[0.879, 2.340]
Discrimination	Intentions/Self/Covid	1.756	[1.077, 2.826]
Discrimination	Intentions/Self/Flu	1.304	[0.786, 2.082]

Note. Coefficient estimates are means of the random effects posterior distributions.

Table S5

Regression coefficients (representing the model in Figure 1f) for 5C aspects of vaccine hesitancy as a function of latent vaccine acceptance scores, disease and 5C subscale.

Term	Estimate (b)	95% CIs
acceptance	-0.062	[-0.075, -0.048]
acceptance.Quad	0.010	[0.006, 0.013]
disease[flu]	-0.059	[-0.127, 0.009]
subscale[Collective]	-1.698	[-1.767, -1.631]
subscale[Complacency]	-1.263	[-1.337, -1.200]
subscale[Confidence]	-0.061	[-0.131, 0.006]
subscale[Constraints]	-1.759	[-1.829, -1.694]
acceptance: disease[flu]	0.015	[-0.003, 0.035]
acceptance.Quad: disease[flu]	0.000	[-0.005, 0.005]
acceptance: subscale[Collective]	-0.111	[-0.129, -0.092]
acceptance: subscale[Complacency]	-0.141	[-0.161, -0.123]
acceptance: subscale[Confidence]	0.365	[0.346, 0.384]
acceptance: subscale[Constraints]	0.002	[-0.017, 0.021]
acceptance.Quad: subscale[Collective]	-0.006	[-0.011, -0.002]
acceptance.Quad: subscale[Complacency]	-0.002	[-0.006, 0.003]
acceptance.Quad: subscale[Confidence]	-0.022	[-0.027, -0.018]
acceptance.Quad: subscale[Constraints]	-0.027	[-0.031, -0.022]
disease[flu]: subscale[Collective]	0.186	[0.085, 0.280]
disease[flu]: subscale[Complacency]	0.473	[0.381, 0.568]
disease[flu]: subscale[Confidence]	0.453	[0.354, 0.551]
disease[flu]: subscale[Constraints]	0.503	[0.411, 0.602]
acceptance: disease[flu]: subscale[Collective]	0.000	[-0.025, 0.028]
acceptance: disease[flu]: subscale[Complacency]	-0.023	[-0.050, 0.005]
acceptance: disease[flu]: subscale[Confidence]	-0.103	[-0.130, -0.077]
acceptance: disease[flu]: subscale[Constraints]	0.007	[-0.021, 0.032]
acceptance.Quad: disease[flu]: subscale[Collective]	-0.007	[-0.014, 0.000]
acceptance.Quad: disease[flu]: subscale[Complacency]	-0.009	[-0.017, -0.003]
acceptance.Quad: disease[flu]: subscale[Confidence]	0.000	[-0.007, 0.007]
acceptance.Quad: disease[flu]: subscale[Constraints]	-0.009	[-0.015, -0.001]

Note. The *b* coefficients are means of the posterior distributions. The ‘.Quad’ suffix identifies quadratic terms. The reference level for disease is ‘Covid’, the reference level for 5C subscale is ‘Calculation’.

Table S6

Regression coefficients for vaccine acceptance as a function of CAM use and country (representing the model in Figure 2a), as well as for the same predictors including demographic co-variates.

Parameter	Term	CAM use, country		Including demographics	
		Estimate (b)	95% CIs	Estimate (b)	95% CIs
μ	CAM use	-0.093	[-0.169, -0.015]	-0.027	[-0.111, 0.056]
	country[germany]	-0.085	[-0.207, 0.033]	-0.768	[-1.644, -0.299]
	country[usa]	-0.183	[-0.308, -0.054]	-0.740	[-1.671, -0.253]
	CAM use: country[germany]	-0.081	[-0.205, 0.039]	-0.103	[-0.235, 0.029]
	CAM use: country[usa]	-0.035	[-0.160, 0.087]	-0.069	[-0.198, 0.057]
	age			0.158	[0.068, 0.248]
	education			-0.060	[-0.231, 0.106]
	gender[nonbinary]			-0.118	[-1.222, 1.013]
	gender[woman]			-0.322	[-0.509, -0.136]
	ideology			-0.009	[-0.122, 0.103]
	age: country[germany]			-0.236	[-0.384, -0.083]
	age: country[usa]			0.010	[-0.127, 0.148]
	country[germany]: education			0.194	[-0.001, 0.502]
	country[usa]: education			0.285	[0.077, 0.616]
	gender[nonbinary]: country[germany]			0.661	[-0.639, 1.972]
	gender[nonbinary]: country[usa]			-0.049	[-1.329, 1.229]
	gender[woman]: country[germany]			0.521	[0.254, 0.784]
	gender[woman]: country[usa]			0.114	[-0.152, 0.382]
	ideology: country[germany]			-0.344	[-0.507, -0.180]
	ideology: country[usa]			-0.464	[-0.599, -0.327]
ϕ	country[germany]	0.064	[-0.074, 0.203]	0.129	[-0.020, 0.280]
	country[usa]	-0.678	[-0.809, -0.545]	-0.471	[-0.611, -0.329]

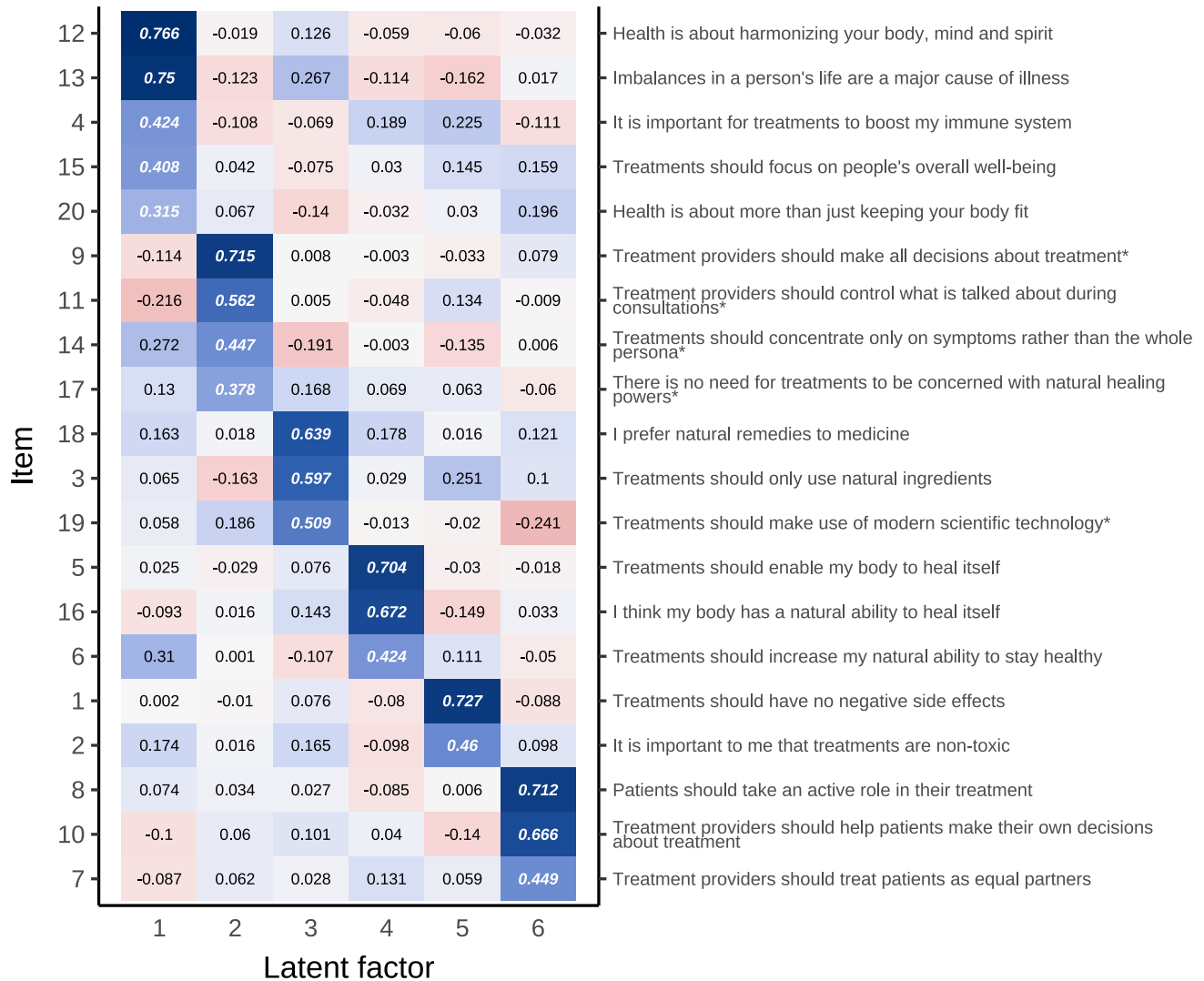
Note. The b coefficients are means of the posterior distributions. For (ordered) beta regressions, the main model parameters are μ (mean, or location of the outcome variable) and ϕ (precision, or inverse of variance of the outcome variable). The reference level for country is 'Argentina'; the reference level for gender is 'man'.

Table S7

Regression coefficients for vaccine acceptance as a function of CAM use, CAM reliance and country (representing the model in Figure 2b), or the same predictors along with demographic co-variables.

Parameter	Term	CAM use/reliance, country		Including demographics	
		Estimate (b)	95% CIs	Estimate (b)	95% CIs
μ	CAM reliance	-0.089	[-0.190, -0.005]	-0.071	[-0.185, 0.030]
	CAM use	0.045	[-0.082, 0.182]	0.116	[-0.032, 0.276]
	country[germany]	-0.033	[-0.249, 0.220]	-1.384	[-5.481, -0.247]
	country[usa]	-0.036	[-0.254, 0.230]	-0.878	[-2.519, -0.139]
	CAM reliance: country[germany]	-0.052	[-0.186, 0.132]	-0.050	[-0.221, 0.345]
	CAM reliance: country[usa]	-0.184	[-0.423, -0.013]	-0.107	[-0.328, 0.057]
	CAM use: CAM reliance	-0.080	[-0.164, -0.011]	-0.086	[-0.188, -0.008]
	CAM use: country[germany]	-0.026	[-0.254, 0.187]	-0.217	[-0.576, 0.073]
	CAM use: country[usa]	0.069	[-0.166, 0.340]	-0.043	[-0.288, 0.206]
	CAM use: CAM reliance: country[germany]	-0.087	[-0.407, 0.085]	0.043	[-0.305, 0.239]
	CAM use: CAM reliance: country[usa]	-0.046	[-0.198, 0.099]	-0.005	[-0.149, 0.162]
	age			0.157	[0.064, 0.248]
	education			-0.089	[-0.274, 0.067]
	gender[nonbinary]			-1.178	[-4.295, 1.822]
	gender[woman]			-0.342	[-0.533, -0.152]
	ideology			-0.018	[-0.130, 0.097]
	country[germany]: age			-0.245	[-0.396, -0.095]
	country[germany]: gender[nonbinary]			2.172	[-1.008, 5.606]
	country[germany]: gender[woman]			0.575	[0.301, 0.849]
	country[germany]: ideology			-0.305	[-0.472, -0.145]
	country[usa]: age			0.010	[-0.130, 0.147]
	country[usa]: gender[nonbinary]			1.018	[-2.118, 4.310]
	country[usa]: gender[woman]			0.150	[-0.121, 0.425]
	country[usa]: ideology			-0.440	[-0.578, -0.305]
	education: country[germany]			0.418	[0.039, 1.788]
	education: country[usa]			0.361	[0.095, 0.929]
ϕ	country[germany]	0.082	[-0.054, 0.221]	0.137	[-0.015, 0.289]
	country[usa]	-0.649	[-0.779, -0.516]	-0.464	[-0.608, -0.321]

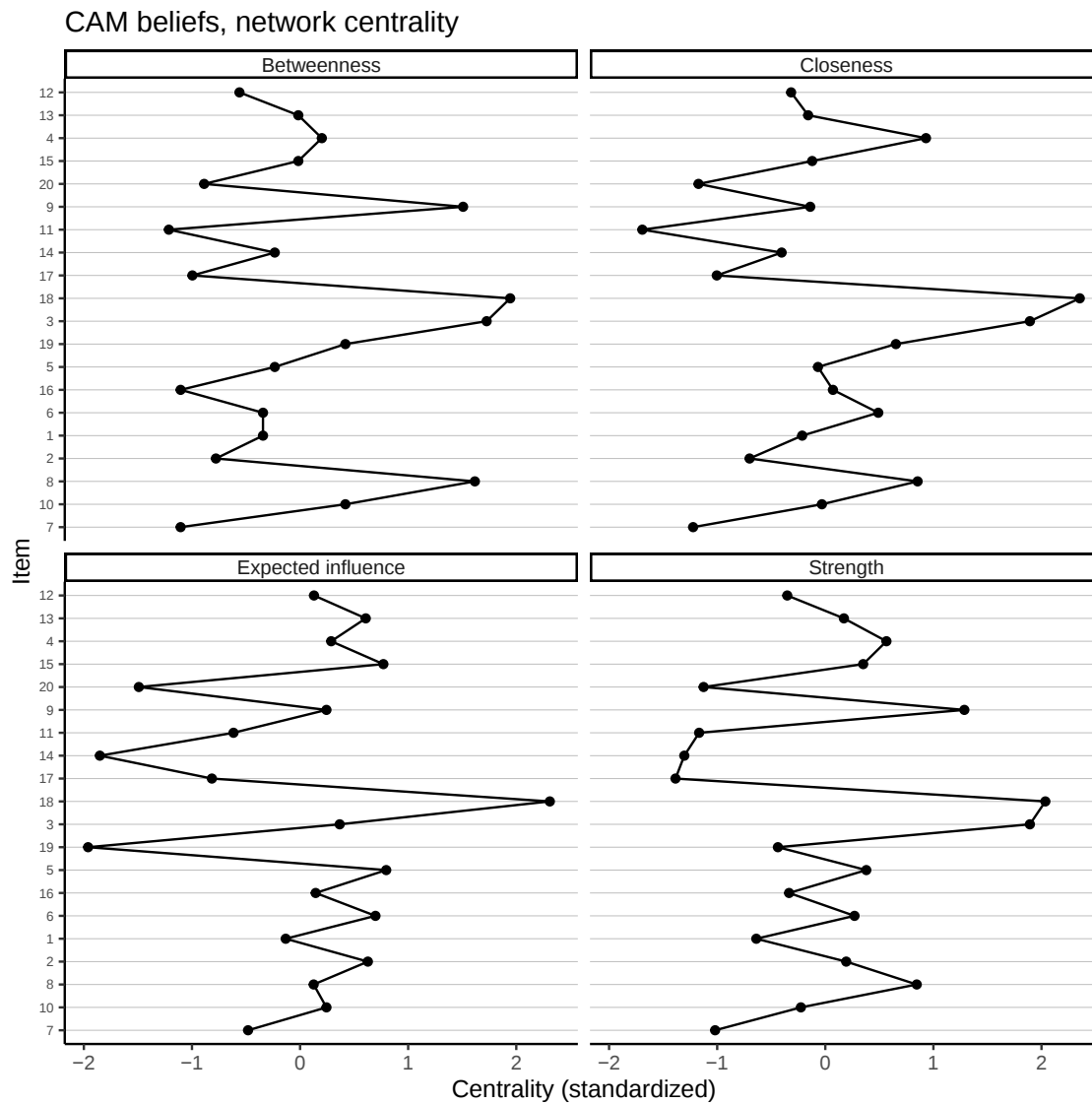
Note. The b coefficients are means of the posterior distributions. For (ordered) beta regressions, the main model parameters are μ (mean, or location of the outcome variable) and ϕ (precision, or inverse of variance of the outcome variable). The reference level for country is 'Argentina'; the reference level for gender is 'man'.

Figure S1*Exploratory Factor Analysis of CAM beliefs.*

Note. Standardized loadings for CAM belief items from a 6-factor exploratory factor analysis (EFA). The factor that each item loads highest on is highlighted with white italic font. Cell color indicates loading strength and direction (bluer = more positive; redder = more negative)

Figure S2

Four indices of network centrality for CAM belief items from the Gaussian Graphical Model (GGM) in Figure 2d.



Note. All indices are z-scored. Briefly, ‘betweenness’ reflects how often a node lies on the shortest path between two other nodes; ‘closeness’ measures distance to other nodes if distance is the inverse of edge weights; ‘expected influence’ tracks how a node would activate vs deactivate other nodes if its own activation were increased; and ‘strength’ is a sum of the absolute values of each node’s edge weights.

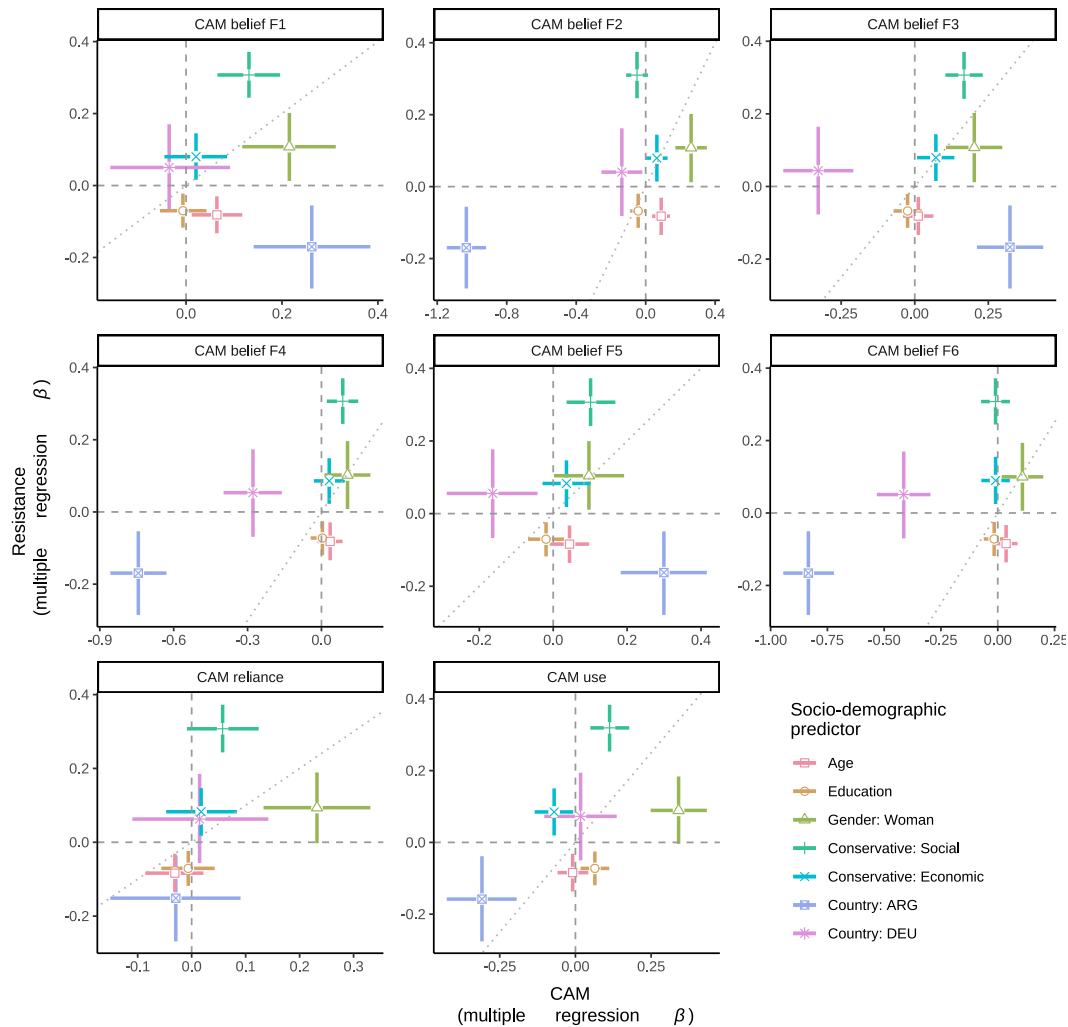
Table S8

Regression coefficients for vaccine acceptance as a function of latent CAM beliefs and country (representing the model in Figure 2e), or the same predictors along with demographic co-variables.

Parameter	Term	CAM beliefs, country		Including demographics	
		Estimate (b)	95% CIs	Estimate (b)	95% CIs
μ	belief score	0.016	[-0.090, 0.123]	0.043	[-0.072, 0.158]
	country[germany]	-0.175	[-0.292, -0.054]	-0.919	[-1.721, -0.562]
	country[usa]	-0.220	[-0.345, -0.092]	-0.968	[-1.578, -0.496]
	factor 2	-0.141	[-0.276, -0.007]	-0.099	[-0.246, 0.043]
	factor 3	0.147	[0.020, 0.274]	0.162	[0.027, 0.294]
	factor 4	-0.030	[-0.153, 0.095]	-0.011	[-0.143, 0.120]
	factor 5	0.006	[-0.115, 0.128]	0.015	[-0.116, 0.147]
	factor 6	0.024	[-0.098, 0.150]	0.041	[-0.090, 0.176]
	country[germany]: belief score	-0.335	[-0.475, -0.195]	-0.266	[-0.413, -0.120]
	country[germany]: factor 2	0.223	[0.044, 0.400]	0.162	[-0.024, 0.348]
	country[germany]: factor 3	-0.233	[-0.409, -0.058]	-0.232	[-0.414, -0.049]
	country[germany]: factor 4	0.092	[-0.079, 0.261]	0.053	[-0.124, 0.230]
	country[germany]: factor 5	-0.026	[-0.199, 0.144]	-0.033	[-0.216, 0.143]
	country[germany]: factor 6	0.041	[-0.130, 0.210]	-0.002	[-0.186, 0.177]
	country[usa]: belief score	-0.212	[-0.354, -0.070]	-0.137	[-0.280, 0.006]
	country[usa]: factor 2	0.211	[0.019, 0.403]	0.167	[-0.026, 0.357]
	country[usa]: factor 3	-0.156	[-0.338, 0.025]	-0.165	[-0.348, 0.015]
	country[usa]: factor 4	0.124	[-0.062, 0.306]	0.066	[-0.116, 0.250]
	country[usa]: factor 5	0.001	[-0.179, 0.176]	-0.014	[-0.196, 0.166]
	country[usa]: factor 6	-0.010	[-0.193, 0.172]	-0.034	[-0.218, 0.151]
	factor 2: belief score	-0.310	[-0.470, -0.151]	-0.274	[-0.450, -0.102]
	factor 3: belief score	-0.492	[-0.649, -0.335]	-0.523	[-0.688, -0.354]
	factor 4: belief score	-0.130	[-0.276, 0.014]	-0.130	[-0.284, 0.025]
	factor 5: belief score	-0.018	[-0.171, 0.136]	-0.044	[-0.213, 0.124]
	factor 6: belief score	0.040	[-0.105, 0.185]	0.041	[-0.115, 0.195]
	country[germany]: factor 2: belief score	0.541	[0.327, 0.757]	0.354	[0.124, 0.584]
	country[germany]: factor 3: belief score	0.382	[0.171, 0.590]	0.437	[0.220, 0.652]
	country[germany]: factor 4: belief score	0.096	[-0.100, 0.293]	0.083	[-0.124, 0.289]
	country[germany]: factor 5: belief score	0.012	[-0.190, 0.216]	0.038	[-0.179, 0.259]
	country[germany]: factor 6: belief score	0.110	[-0.090, 0.313]	0.025	[-0.187, 0.239]
	country[usa]: factor 2: belief score	0.333	[0.120, 0.547]	0.188	[-0.033, 0.409]
	country[usa]: factor 3: belief score	0.136	[-0.074, 0.348]	0.238	[0.023, 0.452]
	country[usa]: factor 4: belief score	0.040	[-0.165, 0.246]	0.058	[-0.148, 0.259]
	country[usa]: factor 5: belief score	0.036	[-0.173, 0.241]	0.062	[-0.154, 0.272]
	country[usa]: factor 6: belief score	0.156	[-0.048, 0.361]	0.048	[-0.157, 0.256]
	age			0.157	[0.120, 0.194]
	education			-0.099	[-0.162, -0.053]
	gender[nonbinary]			-0.610	[-1.306, 0.082]
	gender[optout]			-0.049	[-1.474, 1.382]
	gender[woman]			-0.338	[-0.414, -0.263]
	ideology			-0.005	[-0.050, 0.039]
	country[germany]: age			-0.230	[-0.291, -0.169]
	country[germany]: gender[nonbinary]			1.184	[0.384, 2.011]
	country[germany]: gender[optout]			-0.058	[-1.494, 1.410]
	country[germany]: gender[woman]			0.532	[0.425, 0.638]
	country[germany]: ideology			-0.316	[-0.382, -0.250]
	country[usa]: age			0.009	[-0.047, 0.064]
	country[usa]: gender[nonbinary]			0.389	[-0.395, 1.171]
	country[usa]: gender[optout]			-0.006	[-1.934, 1.951]
	country[usa]: gender[woman]			0.132	[0.025, 0.241]
	country[usa]: ideology			-0.451	[-0.505, -0.396]
	education: country[germany]			0.243	[0.127, 0.514]
	education: country[usa]			0.375	[0.211, 0.582]
ϕ	country[germany]	0.089	[0.034, 0.145]	0.121	[0.058, 0.181]
	country[usa]	-0.669	[-0.722, -0.615]	-0.485	[-0.543, -0.427]

Figure S3

Regression coefficients (β with 95% CIs) for sociodemographic predictors of vaccine resistance and CAM (multivariate outcomes shown on the y and x axes, respectively).



Note. These models are linear regressions, as opposed to the ordered Beta regressions of the main text, because this is a parsimonious way to handle multivariate outcomes with quite different distributions. All numeric variables are standardized, though the focus is less on the size of each coefficient, but rather on whether sociodemographic factors predict resistance and CAM in similar ways. The dotted reference line at $y = x$ indicates where each predictor would lie if it had the same effect on CAM and vaccine resistance. We consider a predictor to have very similar effects if both CIs touch the dotted reference line; or weakly similar effects if it is at least in the same quadrants as the reference line (meaning that the same factor would at least predict each outcome in the same direction). Gender has similar associations with both CAM and resistance, lying near the dotted reference line in most of the panels, and always lying in the same quadrants. Women had higher resistance and were more pro-CAM. Other predictors are less consistent. Social conservatism is associated with higher resistance, with higher CAM beliefs on Factors 1, 3, 5 and 6, and with greater CAM use. In other cases, its CIs include $x = 0$. Age is the most dissimilar predictor, often lying in opposite quadrants to the dotted reference line. It is associated with lower resistance but is sometimes associated with higher CAM. Education is dissimilar in one panel as it is associated with lower resistance but with higher CAM use (in other panels, its CIs touch $x = 0$). Note that economic conservatism is consistently near the origin as these are multiple regressions: economic conservatism does not predict much further variance beyond social conservatism.

Table S9

Linear regression coefficients for select psychological scales as a function of vaccine resistance and socio-demographic co-variables (representing the models in Figure 3d&e).

Psych. scale	Term	Estimate (b)	95% CIs
Corrupt	age	0.004	[-0.002, 0.010]
Corrupt	country[ARG]	1.315	[0.626, 1.934]
Corrupt	country[DEU]	0.377	[-0.589, 1.060]
Corrupt	education	-0.083	[-0.356, 0.069]
Corrupt	gender[nonbinary]	0.174	[-0.547, 0.894]
Corrupt	gender[woman]	-0.021	[-0.164, 0.123]
Corrupt	ideology	0.228	[0.159, 0.297]
Corrupt	resistance	1.413	[0.829, 1.999]
Corrupt	resistance.Quad	0.391	[-0.196, 0.982]
Corrupt	age:country[ARG]	-0.005	[-0.014, 0.004]
Corrupt	age:country[DEU]	-0.009	[-0.019, 0.001]
Corrupt	education:country[ARG]	0.127	[-0.053, 0.340]
Corrupt	education:country[DEU]	0.050	[-0.180, 0.388]
Corrupt	gender[nonbinary]:country[ARG]	-0.009	[-2.003, 1.959]
Corrupt	gender[nonbinary]:country[DEU]	0.717	[-0.389, 1.833]
Corrupt	gender[woman]:country[ARG]	-0.056	[-0.284, 0.162]
Corrupt	gender[woman]:country[DEU]	0.092	[-0.124, 0.307]
Corrupt	ideology:country[ARG]	-0.166	[-0.297, -0.034]
Corrupt	ideology:country[DEU]	0.021	[-0.109, 0.155]
Corrupt	resistance.Quad:country[ARG]	0.474	[-0.523, 1.479]
Corrupt	resistance.Quad:country[DEU]	-0.081	[-1.066, 0.908]
Corrupt	resistance:country[ARG]	-1.270	[-2.168, -0.355]
Corrupt	resistance:country[DEU]	-0.832	[-1.738, 0.065]
Distrust	age	0.002	[-0.004, 0.009]
Distrust	country[ARG]	1.198	[0.448, 1.814]
Distrust	country[DEU]	0.260	[-0.607, 0.941]
Distrust	education	-0.148	[-0.490, 0.071]
Distrust	gender[nonbinary]	-0.036	[-0.726, 0.659]
Distrust	gender[woman]	0.082	[-0.058, 0.222]
Distrust	ideology	0.354	[0.287, 0.422]
Distrust	resistance	1.537	[0.975, 2.095]
Distrust	resistance.Quad	-0.075	[-0.647, 0.488]
Distrust	age:country[ARG]	-0.003	[-0.012, 0.006]
Distrust	age:country[DEU]	-0.008	[-0.018, 0.002]
Distrust	education:country[ARG]	0.194	[0.027, 0.455]
Distrust	education:country[DEU]	0.049	[-0.188, 0.364]
Distrust	gender[nonbinary]:country[ARG]	0.002	[-1.963, 2.006]
Distrust	gender[nonbinary]:country[DEU]	1.283	[0.187, 2.374]
Distrust	gender[woman]:country[ARG]	-0.103	[-0.318, 0.114]
Distrust	gender[woman]:country[DEU]	-0.141	[-0.352, 0.068]
Distrust	ideology:country[ARG]	-0.278	[-0.407, -0.153]
Distrust	ideology:country[DEU]	-0.058	[-0.188, 0.069]
Distrust	resistance.Quad:country[ARG]	0.109	[-0.861, 1.064]
Distrust	resistance.Quad:country[DEU]	-0.115	[-1.074, 0.850]
Distrust	resistance:country[ARG]	-0.804	[-1.662, 0.069]
Distrust	resistance:country[DEU]	-0.198	[-1.093, 0.693]
DYOR	age	-0.001	[-0.008, 0.006]
DYOR	country[ARG]	0.621	[-0.108, 1.539]

Table S9*Regression coefficients, psychological scales (continued)*

Psych. scale	Term	Estimate (β)	95% CIs
DYOR	country[DEU]	0.855	[0.191, 1.773]
DYOR	education	0.095	[-0.033, 0.262]
DYOR	gender[nonbinary]	-0.274	[-1.045, 0.500]
DYOR	gender[woman]	0.131	[-0.030, 0.296]
DYOR	ideology	0.294	[0.217, 0.371]
DYOR	resistance	1.531	[0.912, 2.151]
DYOR	resistance.Quad	-0.477	[-1.108, 0.159]
DYOR	age:country[ARG]	0.007	[-0.003, 0.017]
DYOR	age:country[DEU]	0.001	[-0.010, 0.012]
DYOR	education:country[ARG]	-0.061	[-0.377, 0.158]
DYOR	education:country[DEU]	-0.276	[-0.585, -0.095]
DYOR	gender[nonbinary]:country[ARG]	-0.001	[-1.982, 1.925]
DYOR	gender[nonbinary]:country[DEU]	0.917	[-0.280, 2.132]
DYOR	gender[woman]:country[ARG]	-0.173	[-0.426, 0.080]
DYOR	gender[woman]:country[DEU]	-0.282	[-0.524, -0.041]
DYOR	ideology:country[ARG]	-0.328	[-0.472, -0.182]
DYOR	ideology:country[DEU]	-0.116	[-0.264, 0.034]
DYOR	resistance.Quad:country[ARG]	-0.188	[-1.232, 0.855]
DYOR	resistance.Quad:country[DEU]	0.135	[-0.919, 1.165]
DYOR	resistance:country[ARG]	-0.003	[-0.935, 0.946]
DYOR	resistance:country[DEU]	-0.430	[-1.376, 0.536]
Limited	age	0.009	[0.002, 0.016]
Limited	country[ARG]	0.763	[0.051, 1.430]
Limited	country[DEU]	0.422	[-0.299, 1.308]
Limited	education	-0.045	[-0.279, 0.123]
Limited	gender[nonbinary]	-0.328	[-1.075, 0.443]
Limited	gender[woman]	0.338	[0.179, 0.503]
Limited	ideology	0.240	[0.162, 0.318]
Limited	resistance	1.257	[0.627, 1.880]
Limited	resistance.Quad	-0.246	[-0.877, 0.380]
Limited	age:country[ARG]	-0.004	[-0.014, 0.006]
Limited	age:country[DEU]	-0.006	[-0.017, 0.005]
Limited	education:country[ARG]	0.171	[-0.024, 0.376]
Limited	education:country[DEU]	-0.099	[-0.405, 0.163]
Limited	gender[nonbinary]:country[ARG]	0.011	[-2.001, 2.012]
Limited	gender[nonbinary]:country[DEU]	1.193	[-0.003, 2.390]
Limited	gender[woman]:country[ARG]	-0.324	[-0.577, -0.074]
Limited	gender[woman]:country[DEU]	-0.066	[-0.309, 0.176]
Limited	ideology:country[ARG]	-0.199	[-0.346, -0.051]
Limited	ideology:country[DEU]	0.099	[-0.052, 0.246]
Limited	resistance.Quad:country[ARG]	0.579	[-0.452, 1.622]
Limited	resistance.Quad:country[DEU]	-0.127	[-1.141, 0.909]
Limited	resistance:country[ARG]	-0.828	[-1.768, 0.100]
Limited	resistance:country[DEU]	-0.152	[-1.125, 0.793]
Evidence conflict	age	-0.006	[-0.013, 0.000]
Evidence conflict	country[ARG]	1.430	[0.702, 2.337]
Evidence conflict	country[DEU]	0.373	[-0.278, 1.379]
Evidence conflict	education	0.134	[0.049, 0.254]
Evidence conflict	gender[nonbinary]	-0.106	[-0.852, 0.651]
Evidence conflict	gender[woman]	0.269	[0.113, 0.422]

Table S9*Regression coefficients, psychological scales (continued)*

Psych. scale	Term	Estimate (β)	95% CIs
Evidence conflict	ideology	0.328	[0.252, 0.401]
Evidence conflict	resistance	1.404	[0.796, 2.019]
Evidence conflict	resistance.Quad	-0.896	[-1.512, -0.281]
Evidence conflict	age:country[ARG]	0.007	[-0.003, 0.017]
Evidence conflict	age:country[DEU]	0.002	[-0.009, 0.013]
Evidence conflict	education:country[ARG]	-0.153	[-0.454, 0.068]
Evidence conflict	education:country[DEU]	-0.233	[-0.581, -0.055]
Evidence conflict	gender[nonbinary]:country[ARG]	0.000	[-1.942, 1.972]
Evidence conflict	gender[nonbinary]:country[DEU]	0.627	[-0.522, 1.804]
Evidence conflict	gender[woman]:country[ARG]	-0.129	[-0.368, 0.115]
Evidence conflict	gender[woman]:country[DEU]	-0.098	[-0.326, 0.129]
Evidence conflict	ideology:country[ARG]	-0.324	[-0.463, -0.182]
Evidence conflict	ideology:country[DEU]	-0.063	[-0.206, 0.084]
Evidence conflict	resistance.Quad:country[ARG]	0.910	[-0.094, 1.918]
Evidence conflict	resistance.Quad:country[DEU]	-0.052	[-1.054, 0.959]
Evidence conflict	resistance:country[ARG]	-0.931	[-1.863, -0.002]
Evidence conflict	resistance:country[DEU]	-0.031	[-0.960, 0.890]
Magical beliefs	age	0.000	[-0.006, 0.007]
Magical beliefs	country[ARG]	1.154	[0.485, 1.814]
Magical beliefs	country[DEU]	-0.190	[-0.892, 0.812]
Magical beliefs	education	0.050	[-0.127, 0.186]
Magical beliefs	gender[nonbinary]	-0.034	[-0.767, 0.705]
Magical beliefs	gender[woman]	0.235	[0.082, 0.387]
Magical beliefs	ideology	0.147	[0.075, 0.219]
Magical beliefs	resistance	1.838	[1.248, 2.425]
Magical beliefs	resistance.Quad	-1.576	[-2.181, -0.969]
Magical beliefs	age:country[ARG]	0.002	[-0.008, 0.012]
Magical beliefs	age:country[DEU]	-0.003	[-0.014, 0.007]
Magical beliefs	education:country[ARG]	0.031	[-0.186, 0.245]
Magical beliefs	education:country[DEU]	-0.106	[-0.475, 0.145]
Magical beliefs	gender[nonbinary]:country[ARG]	0.002	[-1.945, 1.968]
Magical beliefs	gender[nonbinary]:country[DEU]	-0.027	[-1.163, 1.147]
Magical beliefs	gender[woman]:country[ARG]	-0.222	[-0.463, 0.012]
Magical beliefs	gender[woman]:country[DEU]	-0.122	[-0.349, 0.104]
Magical beliefs	ideology:country[ARG]	-0.179	[-0.314, -0.044]
Magical beliefs	ideology:country[DEU]	0.111	[-0.027, 0.251]
Magical beliefs	resistance.Quad:country[ARG]	0.534	[-0.484, 1.571]
Magical beliefs	resistance.Quad:country[DEU]	-0.179	[-1.187, 0.830]
Magical beliefs	resistance:country[ARG]	-0.610	[-1.517, 0.310]
Magical beliefs	resistance:country[DEU]	0.294	[-0.645, 1.208]
Paranormal beliefs	age	0.000	[-0.006, 0.007]
Paranormal beliefs	country[ARG]	1.372	[0.725, 2.046]
Paranormal beliefs	country[DEU]	-0.006	[-0.688, 0.904]
Paranormal beliefs	education	-0.008	[-0.264, 0.138]
Paranormal beliefs	gender[nonbinary]	0.329	[-0.398, 1.079]
Paranormal beliefs	gender[woman]	0.562	[0.414, 0.713]
Paranormal beliefs	ideology	0.095	[0.022, 0.167]
Paranormal beliefs	resistance	1.349	[0.768, 1.924]
Paranormal beliefs	resistance.Quad	-0.694	[-1.282, -0.100]
Paranormal beliefs	age:country[ARG]	-0.004	[-0.014, 0.005]

Table S9*Regression coefficients, psychological scales (continued)*

Psych. scale	Term	Estimate (β)	95% CIs
Paranormal beliefs	age:country[DEU]	-0.008	[-0.018, 0.002]
Paranormal beliefs	education:country[ARG]	0.068	[-0.168, 0.299]
Paranormal beliefs	education:country[DEU]	-0.087	[-0.414, 0.137]
Paranormal beliefs	gender[nonbinary]:country[ARG]	0.015	[-2.012, 1.962]
Paranormal beliefs	gender[nonbinary]:country[DEU]	0.758	[-0.422, 1.912]
Paranormal beliefs	gender[woman]:country[ARG]	-0.365	[-0.591, -0.128]
Paranormal beliefs	gender[woman]:country[DEU]	-0.181	[-0.408, 0.046]
Paranormal beliefs	ideology:country[ARG]	-0.158	[-0.296, -0.021]
Paranormal beliefs	ideology:country[DEU]	0.125	[-0.015, 0.267]
Paranormal beliefs	resistance.Quad:country[ARG]	0.065	[-0.943, 1.070]
Paranormal beliefs	resistance.Quad:country[DEU]	-0.227	[-1.214, 0.752]
Paranormal beliefs	resistance:country[ARG]	-0.510	[-1.420, 0.403]
Paranormal beliefs	resistance:country[DEU]	-0.049	[-0.957, 0.871]
Pseudoscience beliefs	age	0.008	[0.002, 0.015]
Pseudoscience beliefs	country[ARG]	1.380	[0.645, 2.039]
Pseudoscience beliefs	country[DEU]	0.200	[-0.500, 1.228]
Pseudoscience beliefs	education	0.065	[-0.108, 0.198]
Pseudoscience beliefs	gender[nonbinary]	-0.356	[-1.074, 0.367]
Pseudoscience beliefs	gender[woman]	0.363	[0.206, 0.519]
Pseudoscience beliefs	ideology	0.128	[0.054, 0.201]
Pseudoscience beliefs	resistance	1.814	[1.210, 2.413]
Pseudoscience beliefs	resistance.Quad	-1.262	[-1.871, -0.657]
Pseudoscience beliefs	age:country[ARG]	-0.003	[-0.012, 0.007]
Pseudoscience beliefs	age:country[DEU]	-0.004	[-0.015, 0.007]
Pseudoscience beliefs	education:country[ARG]	0.097	[-0.108, 0.345]
Pseudoscience beliefs	education:country[DEU]	-0.160	[-0.521, 0.081]
Pseudoscience beliefs	gender[nonbinary]:country[ARG]	-0.015	[-1.993, 1.943]
Pseudoscience beliefs	gender[nonbinary]:country[DEU]	0.190	[-0.959, 1.338]
Pseudoscience beliefs	gender[woman]:country[ARG]	-0.205	[-0.442, 0.034]
Pseudoscience beliefs	gender[woman]:country[DEU]	-0.225	[-0.458, 0.010]
Pseudoscience beliefs	ideology:country[ARG]	-0.170	[-0.311, -0.032]
Pseudoscience beliefs	ideology:country[DEU]	0.177	[0.039, 0.317]
Pseudoscience beliefs	resistance.Quad:country[ARG]	0.857	[-0.157, 1.874]
Pseudoscience beliefs	resistance.Quad:country[DEU]	-0.085	[-1.114, 0.909]
Pseudoscience beliefs	resistance:country[ARG]	-1.218	[-2.139, -0.311]
Pseudoscience beliefs	resistance:country[DEU]	0.204	[-0.721, 1.143]

Note. The β coefficients are means of the posterior distributions, with all numeric variables standardized. The ‘.Quad’ suffix identifies quadratic terms. The reference level for country is ‘USA’; the reference level for gender is ‘man’. The key result is that for attitudes towards experts (cf. Figure 3d), the quadratic term for vaccine resistance has CIs including 0, whereas for anomalous beliefs (cf. Figure 3e), the quadratic term is negative with CIs that exclude 0.

References

- Betsch, C., Schmid, P., Heinemeier, D., Korn, L., Holtmann, C., and Böhm, R. (2018). Beyond confidence: Development of a measure assessing the 5C psychological antecedents of vaccination. *PloS One*, 13(12):e0208601.
- Bishop, F., Yardley, L., and Lewith, G. (2005). Developing a measure of treatment beliefs: The complementary and alternative medicine beliefs inventory. *Complementary Therapies in Medicine*, 13(2):144–149.
- Brossard, D. and Nisbet, M. C. (2006). Deference to scientific authority among a low information public: Understanding U.S. opinion on agricultural biotechnology. *International Journal of Public Opinion Research*, 19(1):24–52.
- Bryden, G. M. and Browne, M. (2016). Development and evaluation of the RI-CAM-Q as a brief summative measure of CAM utilisation. *Complementary Therapies in Medicine*, 27:82–86.
- Chinn, S. and Hasell, A. (2023). Support for “doing your own research” is associated with COVID-19 misperceptions and scientific mistrust. *Harvard Kennedy School Misinformation Review*.
- de Leeuw, J. R., Gilbert, R. A., and Luchterhandt, B. (2023). jsPsych: Enabling an open-source collaborative ecosystem of behavioral experiments. *Journal of Open Source Software*, 8(85):5351.
- Dean, C. E., Akhtar, S., Gale, T. M., Irvine, K., Wiseman, R., and Laws, K. R. (2021). Development of the paranormal and supernatural beliefs scale using classical and modern test theory. *BMC Psychology*, 9(1):98.
- Hartman, R. O., Dieckmann, N. F., Sprenger, A. M., Stastny, B. J., and DeMarree, K. G. (2017). Modeling attitudes toward science: Development and validation of the credibility of science scale. *Basic and Applied Social Psychology*, 39(6):358–371.
- Hong, S.-M. and Faedda, S. (1996). Refinement of the Hong psychological reactance scale. *Educational and Psychological Measurement*, 56(1):173–182.
- Lindeman, M., Keskivaara, P., and Roschier, M. (2000). Assessment of magical beliefs about food and health. *Journal of Health Psychology*, 5(2):195–209.
- Martin, L. R. and Petrie, K. J. (2017). Understanding the dimensions of anti-vaccination attitudes: The vaccination attitudes examination (VAX) scale. *Annals of Behavioral Medicine*, 51(5):652–660.
- Morgan, M., Collins, W. B., Sparks, G. G., and Welch, J. R. (2018). Identifying relevant anti-science perceptions to improve science-based communication: The negative perceptions of science scale. *Social Sciences*, 7(4):64.
- Newton, C., Feeney, J., and Pennycook, G. (2024). On the disposition to think analytically: Four distinct intuitive-analytic thinking styles. *Personality and Social Psychology Bulletin*, 50(6):906–923.
- Pennycook, G., Cheyne, J. A., Barr, N., Koehler, D. J., and Fugelsang, J. A. (2015). On the reception and detection of pseudo-profound bullshit. *Judgment and Decision making*, 10(6):549–563.
- Rassin, E., Muris, P., Franken, I., Smit, M., and Wong, M. (2007). Measuring general indecisiveness. *Journal of Psychopathology and Behavioral Assessment*, 29:60–67.
- Revelle, W. and Condon, D. M. (2019). Reliability from alpha to omega: a tutorial. *Psychological Assessment*, 31(12):1395–1411.
- Sarathchandra, D., Navin, M. C., Largent, M. A., and McCright, A. M. (2018). A survey instrument for measuring vaccine acceptance. *Preventive Medicine*, 109:1–7.
- Torres, M. N., Barberia, I., and Rodríguez-Ferreiro, J. (2023). A validation of the pseudoscience endorsement scale and assessment of the cognitive correlates of pseudoscientific beliefs. *Humanities and Social Sciences Communications*, 10(1):1–8.
- Van der Wal, R. C., Sutton, R. M., Lange, J., and Braga, J. P. (2018). Suspicious binds: Conspiracy thinking and tenuous perceptions of causal connections between co-occurring and spuriously correlated events. *European Journal of Social Psychology*.
- Wallston, K. A., Strudler Wallston, B., and DeVellis, R. (1978). Development of the multidimensional health locus of control (MHLC) scales. *Health Education Monographs*, 6(1):160–170.